

REMARKS

There are now pending in this application Claims 1, 5-7, 9, 10 and 25-31, of which Claims 1, 5, 6 and 7 are independent. Claim 8 has been cancelled without prejudice or waiver of its subject matter. Claims 28-31 are newly added.

In view of the above amendments and the following remarks, favorable reconsideration and allowance of the above application is respectfully sought.

Initially, Applicants submit herewith a new replacement sheet for Figure 7 in which decision box S706 has been corrected. More specifically, step S706 has been corrected in the drawing to read --Tx > T?-- which is fully supported by and conforms with the specification at least at page 16, lines 23-24. Favorable consideration is respectfully sought.

Each of independent Claims 1 and 5 through 7 was rejected under 35 U.S.C. § 102(b), as being anticipated by Kono et al. (U.S. Patent No. 5,030,900). That rejection is respectfully traversed.

The invention as now set forth in independent Claim 1 is directed to a DC motor control method in a device which drives a mechanism by using a DC motor as a power source. The method includes a first velocity command value generation step for generating a velocity command value to the motor in accordance with a first function based on an elapsed time after a start of deceleration, a determination step for determining whether the mechanism arrives at a predetermined position within a deceleration region and a second velocity command value generation step for generating a velocity command value to the motor in accordance with a second function having an initial value less than a minimum value of the velocity command

value generating in the first velocity command value generation step, upon the determination that the mechanism arrives at the predetermined position in the determination step.

Independent Claim 5 is directed to a program product which includes program codes for performing the above method; independent Claim 6 is directed to a storage medium which stores program codes for performing the above-identified method steps; and independent Claim 7 is directed to a motor control apparatus and incorporates at least the salient features of Claim 1.

As the Examiner will appreciate, each of the independent claims has been amended to recite that the first velocity command value generation step for generating a velocity command value to the motor in accordance with a first function is based on an elapsed time after a start of deceleration. The elapsed time corresponds to T_x as featured in step S106 and described on page 16, lines 23-24, of the specification.

Thus, it is an important feature of amended independent Claims 1 and 5-7 that the velocity command value in the first velocity command value generation step (first deceleration region) is generated in accordance with the first function based on the elapsed time after a start of deceleration. The deceleration control of the claimed invention combines both of the time control and position control and by virtue of this combination of features, a time required to stop the mechanism can be effectively reduced without degrading positioning accuracy.

Kono et al. features a spindle orientation control apparatus having a plurality of deceleration regions as shown in Figure 2 of that reference. However, in Kono et al., when the LS signal is detected at times t_{b0} , the velocity command is reduced by an amount of fed back

velocity pulse (see, Figure 4(b)). Consequently, the deceleration control in Kono et al. is not based on the elapsed time in deceleration, but rather is based on the velocity pulse. Thus, Kono et al. does not disclose or even suggest the invention as recited in each of the independent claims.

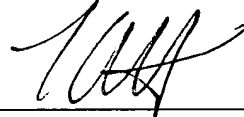
Moreover, Kono et al. is described on the spindle motor control in which the spindle with a load such as a disk is rotated and thus the position signals LS and MS are generated at every cycle. The deceleration control in Kono et al. is intended to stop the spindle within one rotation after the detection of the LS signal, and the time required for the deceleration control is not considered important. Clearly, deceleration control in Kono et al. is quite different from that of the claimed invention. For the foregoing reasons, Applicants respectfully submit that each of independent Claims 1 and 5-7 are patentably distinguishable over the applied art of record.

The remaining claims in the above application are dependent claims which depend either directly or indirectly from one of the above discussed independent claims and are therefore patentable over the art of record for reasons noted above with respect to the independent claims. In addition, each recite features of the invention still further distinguishing it from the applied art. Favorable and independent consideration thereof is respectfully sought.

Applicants respectfully submit that all outstanding matters in this application have been addressed and that the application is in condition for allowance. Favorable reconsideration and early passage to issue of the above application are respectfully sought.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'LAS', is written over a horizontal line.

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